

in order to assure ourselves as to the effect of the lining on the clinker, we burned a small quantity of ground mix on hand, which happened to be from your materials. The clinker was slightly contaminated (slagged on the outside) and the cement was quite slow setting. We have just broken the six months tests on this burning (we made it all up into briquettes), and we quote these figures just to show that the cement even under these conditions was first class. It simply did not harden as rapidly in the first seven days as did the first burning, which itself was a little lacking in that respect.

## NEAT.

Briq.	7 Days.	28 Days.	3 Mths.	6 Mths.	1 Year.
1	496	600	752	816	655
2	473	669	680	780	670
3	480	699	735	764	795
Average	483	656	722	787	707

## STANDARD SAND 3 TO 1.

	7 Days.	28 Days.	3 Mths.	6 Mths.	1 Year.
1	124	230	305	378	394
2	102	233	305	400	391
3	109	213	303	375	445
Average	112	225	305	384	410

Soundness	Air Pat. (Fresh cement) firm and hard.				
	Setting Time—Initial Set 2 hours, 20 minutes.				
	Cold Water Pat. (fresh cement) firm and hard.				
	Final Set 7 hours, 10 minutes.				
	Hot Water Pat. (fresh cement) firm and hard.				
	% Gauge Water Neat 22%.				
Fineness	No. 50 Sieve	100.00	Sand	11%	
	" 100 "	96.90%	Temp. Labo. Air	70F.	
	" 200 "	95.90%	Gauge Water	70F.	
Specific Gravity		3.18	% Humidity	45%	
Silica.	Iron.	Alumina.	Lime.	Magnesia.	Sulphur (So).
20.40	6.98	6.87	60.54	3.08	0.24

Trusting this will be of some value to you, we are,  
Very truly yours,  
LEHIGH VALLEY TESTING LABORATORY.  
(Signed) Ernest B. McCready, General Manager.

Allentown, Pa., Dec. 11, 1907.

Mr. Frank L. Winter,  
Honolulu, T. H.

Dear Sir:  
Mr. Ernest B. McCready, of the Lehigh Valley Testing Laboratory, has referred your letter of November 22 to me.

I have gone over very carefully all you state in your letter to Mr. McCready, and neither myself nor my firm is in a position to build a plant for you on the lines you state. We are engineers to design and build cement plants for any concern who have formed their Company and raised capital, and should you be successfully able to raise the capital required, we should be very glad to be your engineers.

For a plant of 500 barrels capacity per day you should require \$200,000 capitalization. I have gone over carefully the analyses Mr. McCready showed me of your materials, and no experiment would be necessary to demonstrate that Portland Cement can be made from your materials, as an analysis will always show what can be done with the materials. You can make a very good cement out of the materials you have, and no doubt a company formed to build a plant on the property as described on your tracing, would be a very profitable one.

If you can find in the near future you are able to raise your capital, we should be very glad to hear from you again.

Very truly yours,  
FULLER ENGINEERING COMPANY.  
Chas. A. Macham, President.

The Company has now a further sample of the Lava Rock or Clay Clinker and Lime Stone in the hands of the Peninsula Portland Cement Company and the Lehigh Valley Testing Laboratories for a re-examination and burning tests, which will be completed in a very short time, and we are satisfied that these tests going on will prove much more satisfactory and show a much superior quality of Portland Cement than the first examination of our materials; the mixtures being so foreign to the average run of materials that the second examination can be handled to better advantage from the former experience.

## LIME AND USES OF LIME.

Lime has come into use on the Hawaiian Islands to a great extent; more particularly is it used as a fertilizer on the sugar estates, having become indispensable. The director and chemist in charge of the Agricultural Department of the Experiment Station of the Hawaiian Sugar Planters' Association has recommended the use of from five to fifteen barrels of lime per acre, thus, with 220,000 acres planted in sugar cane, creating a market for 1,000,000 to 3,000,000 barrels of lime per year. Last year the promoter of this Company established a lime plant with a capacity of 200 barrels of lime per day, consisting of two Patent Upright Kilns, starting operation on the 26th day of November, 1907. The lime produced has gone beyond expectation in producing a superior quality, standing 98.6% pure lime, 75% to 65% magnesia. Since February 1, 1908, we have carried orders of 3,000 to 4,000 barrels ahead of our daily output.

The possibility for the lime industry has caused the formation of this Company to supply this market.

In selection of the machinery with a view of economical production to utilize all stone quarried, it is found that the Rotary Kilns will more nearly meet the requirements of the soft and porous limestone which quarrying has shown our Coral Lime to be, thereby using all the stone quarried.

To reduce the cost of transportation; give a staple article, which will reduce the cost of containers; make a product that is as good one year from the day it is produced as the day when it is produced, and which will give the same results as the Lump Lime; can be stored any length of time, thus saving delay, and be economical to the consumer, has caused this Company to select the Kritzer Hydrator, to produce Hydrate Lime instead of the ordinary Lump Lime, for comparison, viz.:

## LUMP LIME.

- Will air slake.
- Generates heat on slaking, and with High Calcium Limes burning not infrequently takes place.
- Contains a considerable amount of Grit and Core.
- It is difficult to mix in exact proportions.
- Requires some time for complete slaking.
- Unless extreme care is exercised, is inclined to pit and crack on the wall.
- Cannot be slaked and then mixed with Cement in Cement mortars with uniform results.

## HYDRATE LIME.

- Will not air slake.
- Does not need slaking, hence no heat and a cool, buttery putty is always assured.
- Contains no Grit or Core.
- Is a Dry Powder and can be mixed as accurately as Cement itself.
- No Time at all required for slaking, simply mixed to putty.
- Will not pit or crack on the wall.
- Can be mixed dry with Cement, consequently uniform

ment mortars with uniform results.

- Is the source of considerable loss.
- Is dirty to handle.
- Is uneven in working.
- Is a constant source of trouble all around.
- Is a hazardous steamer freight for Inter-Island trade.
- It cannot be stored in quantity on the plantation.

There is no waste of Hydrated Lime, because Hydrated Lime is uniform; uniform results can be obtained as fertilizers, because it is finely divided and easily placed on the soils.

## LIME USED FOR FERTILIZER.

A number of Agricultural Experimental Stations connected with various States in the Union and the Territory of Hawaii have of late given a great deal of time towards determining the agricultural values of Quick Lime when used for fertilizing purposes.

As a fertilizer for Acid Soils, Lime finds a wide and important application. Although this material has been employed to some extent as a fertilizer for many years, it is only during the past few years that any considerable scientific study has been directed to its use.

Lime changes both the chemical and physical properties of soils which are deficient in Calcium. The value of Lime as a fertilizer depends entirely upon the degree of fineness to which it is pulverized before it is applied to the soil. The greater the percentage of impalpable powder contained in the pulverized Lime, the quicker the benefit that will be derived from its use.

To impress more fully the benefits of Lime to the soils and plant life, we quote from the following bulletins of the Experiment Station of the Hawaiian Sugar Planters' Association.

## BULLETIN NO. 1.

## LIME.

This element, probably more than any other, assists in promoting the chemical changes in the organism of plants by which they grow. It also forms a large part of the permanent brickwork of the plant cells.

The report on soils shows that the original lime content of our soils was ample, being about 0.45 per cent. It also shows with alarming clearness how it has been leached from the high lands by the heavy rains, the 0.45 per cent. being reduced to 0.268 per cent., or about one-half, whilst the low lands increased their amount. Objections to the use of caustic or air-slaked lime were urged in the report on soils. Only in instances where the coming crop will be in need of immediately available lime is it advised, and in these cases only where a heavy growth of lupines, or other vegetable matter, is being plowed in, the lime being spread and covered in with the mass of green growth, which preserves the latent organic matter of the soil from being severely attacked.

We have "Coral" lime in abundance, but that requires to be ground and prepared for use, which with freight makes it costly, considering that it is not a very available form of lime.

Sulphate of lime, or gypsum, I consider the best form in which to use lime on our soils. Now, superphosphates contain from about 40 per cent. to over 45 per cent. of sulphate of lime, in addition to that present as lime phosphate. So that in supplying 100 pounds of soluble phosphoric acid, we add in the neighborhood of 120 pounds of lime at the same time, which is about double the amount removed from the soil by a crop of cane. Moreover, the lime contained in freshly prepared superphosphate is in the finest mechanical and chemical state, and is available without being liable to waste.

## CEMENT.

182,500 barrels Cement per year at \$3.00 per bbl. ....\$547,500.00

## EXPENSES.

## Cost of Manufacture.

100 lbs. Coal or 12 gals. Oil to 1 bbl. Cement, oil at \$1.25 per bbl. or \$0.25 per gal. ....\$0.30  
To produce 1 bbl. Cement, 384 lbs. requires 620 lbs. dry mixture at \$0.50 per ton for materials .155  
Add 25 per cent. of above items for labor..... .1137  
Add 10 per cent. for depreciation..... .0568

Cost of finished Cement in bins.....\$0.6255  
Add cost of 4 Cement bags, 95 lbs. each, at \$0.08 each .32

Cost of Cement per bbl. ready for shipment at mill .....\$0.9455  
182,500 bbls. Cement, cost of manufacture, ready for shipment at \$0.9455..... 172,553.75  
\$374,946.25

## LIME.

352,000 bbls. Lime at the basis of 350 working days, at \$1.50 per bbl., or.....\$525,000.00

## Cost of Manufacture.

50 lbs. coal or 6 gal. oil to 1 bbl. of lime, oil at \$1.25 per bbl. or \$0.25 per gal. ....\$0.15  
280 lbs. material to produce one bbl. of lime at \$0.08 per ton..... .0286  
Add 25 per cent. of above items for labor ..... .0445  
Add 10 per cent. for depreciation..... .0223  
Cost of manufacture .....\$0.2454  
Add cost of hydrating and bagging lime, including bags ..... .25

Cost at mill ready for shipping.....\$0.2454  
352,000 bbls. of lime, cost of manufacture, ready for shipment, at \$0.4954 per bbl.... 173,380.80  
\$351,619.20

Net earnings over cost of production of Cement and Lime..\$726,565.45

## GENERAL EXPENSE.

Rent for materials used for Cement, per year.\$ 6,000.00  
Royalty \$0.10 per ton for Limestone used per year, say 50,000 tons..... 5,000.00  
Interest on preferred stock at 8 per cent. on \$500,000 ..... 40,000.00  
Cost of sales department, say 2 1/2 per cent. on \$1,072,500 ..... 26,812.50  
Transportation on oil, 12 gal. per bbl. Cement, or 43,800 bbls., and oil 6 gal. per bbl. of Lime, or 42,200 bbls. oil, making a yearly consumption of oil of 96,040 bbls., at \$0.15 per bbl. .... 14,406.00

results are assured.

- Is the source of absolutely no loss whatever.
- Is neatly sacked, thus very clean to handle.
- Is perfectly even in working.
- Is a labor saver and a source of economy in every respect.
- Is a non-hazardous freight, therefore will be of great economy.
- Can be bought any time during the year, can be stored with safety, thereby assuring a regular supply.

Transportation on 70,240 tons of Cement and

Lime .....	105,360.00	
Taxes on \$1,000,000 at 1 per cent.....	10,000.00	207,578.50
Income tax 2 per cent. on net, say \$518,986.95.....		\$518,986.95
		10,379.73
Allowing 50 per cent. for fluctuation in prices of Cement and Lime .....		\$508,606.22
		254,303.11

Showing net earnings per year to be.....\$254,303.11

The foregoing should make a conservative proposition for investors; the figures of estimated net returns are believed to be outside figures; they have been scrutinized by the most expert engineers and Cement men in the United States, and no fault found therein.

There is today no line of investment that promises larger, more certain, or more permanent returns on capital invested, nor one where the absence of all speculative features is more marked, than in connection with the proper and economical production of a high-grade Portland Cement and Lime.

There is no prospecting or experimenting to be done, no chance to be taken.

The success of the enterprise is assured.

## ORGANIZATION AND FINANCIAL PLAN.

This Company is organized in connection with and for the development of the valuable deposits described in the foregoing, located at Waianae, Oahu, near Honolulu, Territory of Hawaii, and it is the purpose of the Company to immediately erect and put into operation at this point the best, the most complete Portland Cement and Lime mills, for its size, in the country.

The basis of organization is such that \$500,000 of 8 per cent. Preferred Stock and \$500,000 of Common Stock is the total capitalization of the Company.

All the stock of the Company is issued fully paid, and non-assessable.

The Company will issue its 8 per cent. Preferred Stock as ordered from time to time by the Board of Directors.

The Preferred Stock, as provided in the certificate, "is entitled to a fixed dividend of eight per cent. per annum from July 1st, 1909, or subsequent date of issue, payable annually and cumulative until said shares of stock are called for redemption; the whole or any part thereof being redeemable by said Company at its par value with unpaid dividends at any time on or after July 1st, 1914, said redemption to be made at the time fixed for payment of any annual dividend. The preference as to stock and dividends extends to the assets as well as to the earnings of said Company."

"The voting power of the Preferred shall equal that of the Common Stock, share for share."

With each share of Preferred Stock one-half share of Common Stock is given as a bonus, the remainder of the Common Stock being reserved for the promoters; therefore whenever the Preferred Stock is retired the subscribers thereof will have received their principal, plus 8 per cent. annual dividends, and still hold Common Stock representing a one-half ownership of all the assets of the Company. The purchasers of Preferred Stock are also given control of the affairs of the Company until the Preferred Stock is paid in full and retired.

Dividends on Common Stock will be declared as warranted by the earnings, after making required provisions for Preferred Shares, and provision for such extensions of mills and business as may, in the judgment of the Board of Directors, be of advantage.

The proceeds of the Preferred Stock are estimated to be sufficient to cover all expenses of construction and equipping with all necessary appliances, cement and lime mills with a daily capacity of 500 barrels of cement and 1,000 barrels of lime, and also to provide a working capital.

The management will be under the control of experienced cement and lime manufacturers and men well known in financial and business circles, whose connection with the enterprise establishes its position and assures its success.

## WEEKLY WEATHER BULLETIN

For the Week Ended September 12, 1908.

Honolulu, September 14, 1908.

## GENERAL SUMMARY.

The mean temperatures, as a rule, were somewhat lower than those of the preceding week on Hawaii, Maui and Kauai, and slightly lower on Molokai. On Oahu they were slightly higher.

The rainfall was light throughout the section. The greatest amounts were reported from portions of the Hilo, Puna, Kau and Kona districts of Hawaii, and from the Koolau and Hana districts of Maui. The maximum weekly amount reported was 1.77 inches. No rain occurred in the Wailuku and Lahaina districts of Maui, at the lower levels of the Ewa and Honolulu districts of Oahu, and in portions of the Kau district of Hawaii and the Waimea section of Kauai.

The total amounts of rainfall, in inches, in the several districts were: Hawaii—Kohala and Hamakua 0.50 to 0.88, Hilo 0.64 to 1.31, Puna 1.09, Kau 0.00 to 1.30, and Kona 1.05 to 1.77; Maui—Koolau and Hana 1.57 to 1.29, Hamakua 0.31, and no rain elsewhere; Oahu—Koolauloa 0.95, Koolau 0.88 to 2.24, and Ewa and Honolulu 0.22 to 0.28; and Kauai—Koolau 0.62, and Kona 0.22 to 0.80.

All stations in the section, excepting two on Hawaii, report less rainfall than during the preceding week. Marked deficiencies occurred in portions of the following districts: The Hilo and Kau of Hawaii, the Koolau of Maui, Koolau and Ewa of Oahu, and Koolau, Puna and eastern part of the Kona of Kauai.

A slight earthquake shock occurred at 6.00 p. m. of the 5th at Oohala, Hawaii.

The following table shows the weekly averages of temperature and rainfall for the principal Islands and for the Group:

	Temperature.	Rainfall.
Hawaii ..	73.6 deg.	0.90 inch.
Maui ..	75.3 deg.	0.59 inch.
Oahu ..	77.0 deg.	0.11 inch.
Kauai ..	76.6 deg.	0.10 inch.
Molokai ..	75.9 deg.	0.16 inch.
Entire Group.....	75.3 deg.	0.52 inch.

At the local office of the U. S. Weather Bureau in Honolulu, clear to partly cloudy weather prevailed, with no rainfall, a deficiency of 0.28 inch as compared with the normal, and 0.65 less than during the preceding week. The maximum temperature was 83 deg., minimum 72 deg., and mean 77.9 deg., 1.1 deg. higher than last week's, and 0.04 deg. below the normal. The mean daily relative humidity ranged from 62 per cent to 68 per cent, and for the week was 65.4 per cent. Northeasterly winds prevailed on each day of the week, with an average hourly velocity of 8.6 miles. The mean daily barometer ranged from 30.04 to 30.07 inches, and the mean for the week, 30.06, was .09 inch above the normal.

WM. B. STOCKMAN, Section Director.

China is a bad place for furniture. In the summer months it is so damp that furniture put together with glue falls apart and drawers stick, while in the dry months furniture goes to the other extreme, and often exhibits cracks half an inch or more in width.

Maud—But do you believe in vaccination? Bessie—Rather. It kept my sister from playing the piano for nearly a week.—Philadelphia Inquirer.